

CLAIMS AMENDMENTS:

Please cancel claims 152 and 153 without prejudice.

Please amend the claims as follows:

Claims 1-124 (canceled)

124. (Currently amended) A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid ~~molecule~~ sequence encoding an OB polypeptide ~~under conditions that provide for expression of the OB polypeptide *in vivo* whereby the body weight of the mammal is modified, such~~ operatively linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, and wherein the OB polypeptide capable of modulating decreasing body weight and is selected from the group consisting of:

- a) the amino acid sequence set out in SEQ ID NO: 2;
- b) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 2;
- c) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 2, having an N-terminal methionine or an N-terminal polyhistidine;
- d) the amino acid sequence set out in SEQ ID NO: 4;
- e) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 4; and
- f) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 4, having an N-terminal methionine or an N-terminal polyhistidine.

Claims 125-131 (canceled)

132. (Currently amended) A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid ~~molecule~~ sequence encoding a OB polypeptide ~~under conditions that provide for expression of the OB polypeptide *in vivo* whereby the body weight of the mammal is modified, such~~ operatively linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal

exhibits a decrease in body weight, wherein the vector is a viral vector, and wherein the OB polypeptide capable of ~~modulating~~ decreasing body weight and is selected from the group consisting of:

- a) the amino acid sequence set out in SEQ ID NO: 5;
- b) the amino acid sequence set out in amino acids 22-166 of SEQ ID NO: 5;
- c) the amino acid sequence set out in amino acids 22-166 of SEQ ID NO: 5, having an N-terminal methionine or an N-terminal polyhistidine;
- d) the amino acid sequence set out in SEQ ID NO: 6;
- e) the amino acid sequence set out in amino acids 22-166 of SEQ ID NO: 6; and
- f) the amino acid sequence set out in amino acids 22-166 of SEQ ID NO: 6, having an N-terminal methionine or an N-terminal polyhistidine.

133. (Currently amended) A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid ~~molecule~~ sequence encoding an OB polypeptide ~~under conditions that provide for expression of the OB polypeptide in vivo whereby the body weight of the mammal is modified, such~~ operatively linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, and wherein the OB polypeptide capable of ~~modulating~~ decreasing body weight wherein such OB polypeptide has 83 percent or more amino acid identity to the OB polypeptide amino acid sequence set out in SEQ ID NOS: 2, 4, 5, 6, 23 or 25.

134. (Currently amended) A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid ~~molecule~~ sequence encoding an analog of an OB polypeptide ~~under conditions that provide for expression of the OB polypeptide analog in vivo whereby the body weight of the mammal is modified, such~~ operatively linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, and wherein the OB polypeptide analog capable of ~~modulating~~ decreasing body weight and comprising comprises amino acids 22-167 of SEQ ID NO:4 wherein one or more amino acids selected from the group

consisting of amino acids 53, 56, 71, 85, 89, 92, 95, 98, 110, 118, 121, 122, 126, 127, 128, 129, 132, 139, 157, 159, 163 and 166 is substituted with another amino acid.

135. (Currently amended) A method for modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid ~~molecule~~ sequence encoding an analog of an OB polypeptide ~~under conditions that provide for expression of the OB polypeptide analog in vivo whereby the body weight of the mammal is modified, such~~ operatively linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, and wherein the OB polypeptide analog capable of modulating decreasing body weight and comprising comprises amino acids 22-166 of SEQ ID NO:6 wherein one or more amino acids selected from the group consisting of amino acids 52, 55, 70, 84, 88, 91, 94, 97, 109, 117, 120, 121, 125, 126, 127, 128, 131, 138, 156, 158, 162 and 165 is substituted with another amino acid.

136. (Previously presented) A method according to claim 163 wherein said mammal is a mouse.

137. (Previously presented) A method according to claim 163 wherein said mammal is a human.

Claim 138 (canceled)

139. (Currently amended) A method of delivering DNA encoding an OB polypeptide capable of modulating body weight to a mammal comprising delivering to said mammal a vector ~~which comprises such~~ comprising an OB polypeptide encoding DNA ~~operatively associated with an expression control sequence~~ linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, and ~~under conditions that provide for the expression of the OB polypeptide by the mammal~~ wherein said OB polypeptide is selected from the group consisting of:

- a) the amino acid sequence set out in SEQ ID NO: 2;
- b) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 2;

- c) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 2, having an N-terminal methionine or an N-terminal polyhistidine;
- d) the amino acid sequence set out in SEQ ID NO: 4;
- e) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 4; and
- f) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 4, having an N-terminal methionine or an N-terminal polyhistidine.

140. (Currently amended) A method of delivering DNA encoding an OB polypeptide capable of modulating body weight to a mammal comprising delivering to said mammal a vector ~~which comprises such~~ comprising an OB polypeptide encoding DNA operatively associated with an ~~expression control sequence~~ linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, and under conditions that provide for the expression of the OB polypeptide by the mammal wherein said OB polypeptide is selected from the group consisting of the amino acid sequence set forth in:

- a) SEQ ID NO: 5;
- b) amino acids 22- 166 of SEQ ID NO: 5;
- c) amino acids 22-166 of SEQ ID NO: 5, having an N-terminal methionine or an N-terminal polyhistidine;
- d) SEQ ID NO: 6;
- e) amino acids 22-166 of SEQ ID NO: 6; and
- f) amino acids 22-166 of SEQ ID NO: 6, having an N-terminal methionine or an N-terminal polyhistidine.

141. (Currently amended) A method of delivering DNA encoding an OB polypeptide capable of modulating body weight to a mammal comprising delivering to said mammal a vector ~~which comprises such~~ comprising an OB polypeptide encoding DNA operatively associated with an ~~expression control sequence, under conditions that provide for expression of the OB polypeptide by the mammal, linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is~~

a viral vector, and wherein said OB polypeptide has 83 percent or greater amino acid identity to the OB polypeptide amino acid sequence set out in SEQ ID NOS: 2, 4, 5, 6, 23 or 25.

142. (Currently amended) A method of delivering DNA encoding an analog of an OB polypeptide capable of modulating body weight to a mammal comprising delivering to said mammal a vector ~~which comprises such~~ comprising an OB polypeptide analog encoding DNA operatively associated with an expression control sequence, under conditions that provide for expression of the OB polypeptide analog by the mammal, linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, and wherein said OB polypeptide analog ~~comprising~~ comprises amino acids 22-167 of SEQ ID NO:4 wherein one or more amino acids selected from the group consisting of amino acids 53, 56, 71, 85, 89, 92, 95, 98, 110, 118, 121, 122, 126, 127, 128, 129, 132, 139, 157, 159, 163 and 166 is substituted with another amino acid.

143. (Currently amended) A method of delivering DNA encoding an analog of an OB polypeptide capable of modulating body weight to a mammal comprising delivering to said mammal a vector ~~which comprises such~~ comprising an OB polypeptide analog encoding DNA operatively associated with an expression control sequence, under conditions that provide for expression of the OB polypeptide analog by the mammal, linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, and wherein said OB polypeptide analog ~~comprising~~ comprises amino acids 22-166 of SEQ ID NO:6 wherein one or more amino acids selected from the group consisting of amino acids 52, 55, 70, 84, 88, 91, 94, 97, 109, 117, 120, 121, 125, 126, 127, 128, 131, 138, 156, 158, 162 and 165 is substituted with another amino acid.

Claim 144 (canceled)

145. (Currently amended) A method of expressing an OB polypeptide in a mammal comprising administering to said mammal a DNA vector which vector comprises DNA encoding an OB

polypeptide capable of ~~modulating decreasing~~ body weight operatively ~~associated with an expression control sequence whereby~~ linked to a promoter, wherein said vector is administered in a therapeutically effective amount such that said OB polypeptide is expressed in said mammal, wherein said vector is a viral vector, and wherein said OB polypeptide is selected from the group consisting of:

- a) the amino acid sequence set out in SEQ ID NO: 2;
- b) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 2;
- c) the amino acid sequence set out in amino acids 22-167 of SEQ ID NO: 2, having an N-terminal methionine or an N-terminal polyhistidine;
- d) the amino acid sequence set out in SEQ ID NO: 4;
- e) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 4; and
- f) the amino acid sequence set out in amino acids 22-167 of SEQ ID NO: 4, having an N-terminal methionine or an N-terminal polyhistidine.

146. (Currently amended) A method of expressing an OB polypeptide in a mammal comprising administering to said mammal a DNA vector which vector comprises DNA encoding an OB polypeptide capable of ~~modulating decreasing~~ body weight operatively ~~associated with an expression control sequence whereby~~ linked to a promoter, wherein said vector is administered in a therapeutically effective amount such that said OB polypeptide is expressed in said mammal, wherein said vector is a viral vector, and wherein said OB polypeptide is selected from the group consisting of the amino acid sequence set forth in:

- a) SEQIDNO:5;
- b) amino acids 22-166 of SEQ ID NO: 5;
- c) amino acids 22-166 of SEQ ID NO:5, having an N-terminal methionine or an N-terminal polyhistidine;
- d) SEQ IDNO: 6;
- e) amino acids 22-166 of SEQ ID NO: 6; and
- f) amino acids 22-166 of SEQ ID NO:6, having an N-terminal methionine or an N-terminal polyhistidine.

147. (Currently amended) A method of expressing an OB polypeptide in a mammal comprising administering to said mammal a DNA vector which vector comprises DNA encoding an OB polypeptide capable of ~~modulating~~ decreasing body weight operatively ~~associated with an expression control sequence whereby~~ linked to a promoter, wherein said vector is administered in a therapeutically effective amount such that said OB polypeptide is expressed in said mammal, wherein said vector is a viral vector, and wherein said OB polypeptide has 83 percent or greater amino acid identity to the OB polypeptide amino acid sequence set out in SEQ ID NOS: 2, 4, 5, 6, 23 or 25.

148. (Currently amended) A method of expressing an analog of an OB polypeptide in a mammal comprising administering to said mammal a DNA vector which vector comprises DNA encoding an OB polypeptide analog capable of ~~modulating~~ decreasing body weight operatively ~~associated with an expression control sequence whereby~~ linked to a promoter, wherein said vector is administered in a therapeutically effective amount such that said OB polypeptide is expressed in said mammal, wherein said vector is a viral vector, said OB polypeptide analog comprising amino acids 22-167 of SEQ ID NO:4 wherein one or more amino acids selected from the group consisting of amino acids 53, 56, 71, 85, 89, 92, 95, 98, 110, 118, 121, 122, 126, 127, 128, 129, 132, 139, 157, 159, 163 and 166 is substituted with another amino acid.

149. (Currently amended) A method of expressing an analog of an OB polypeptide in a mammal comprising administering to said mammal a DNA vector which vector comprises DNA encoding an OB polypeptide analog capable of ~~modulating~~ decreasing body weight operatively ~~associated with an expression control sequence whereby~~ linked to a promoter, wherein said vector is administered in a therapeutically effective amount such that said OB polypeptide is expressed in said mammal, wherein said vector is a viral vector, said OB polypeptide analog comprising amino acids 22-166 of SEQ ID NO:6 wherein one or more amino acids selected from the group consisting of amino acids 52, 55, 70, 84, 88, 91, 94, 97, 109, 117, 120, 121, 125, 126, 127, 128, 131, 138, 156, 158, 162 and 165 is substituted with another amino acid.

150. (Currently amended) A method according to any of claims 145-149 wherein said viral DNA vector ~~is a viral vector and~~ is selected from the group consisting of attenuated or defective DNA virus vectors and retroviral vectors.

151. (Currently amended) A method according to claim 150 wherein said attenuated or defective DNA virus vector is selected from the group consisting of adenovirus and adeno-associated virus (AAV). ~~viral vector~~  
~~is administered by means of infection or liposome-mediated transfection.~~

Claim 152 (canceled)

Claim 153 (canceled)

Claim 154 (canceled)

155. (Currently amended) A method of expressing an OB polypeptide in a mammal comprising administering to said mammal a mammalian ~~cell~~ cells comprising an expression vector which vector comprises DNA encoding an OB polypeptide capable of ~~modulating~~ decreasing body weight operatively ~~associated with an expression control sequence whereby~~ linked to a promoter, wherein said mammalian cells are administered in a therapeutically effective amount such that the OB polypeptide is expressed ~~by~~ in the mammal and wherein said OB polypeptide is selected from the group consisting of:

- a) the amino acid sequence set out in SEQ ID NO: 2;
- b) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 2;
- c) the amino acid sequence set out in amino acids 22-167 of SEQ ID NO: 2, having an N-terminal methionine or an N-terminal polyhistidine;
- d) the amino acid sequence set out in SEQ ID NO: 4;
- e) the amino acid sequence set out in amino acids 22-167 of SEQ. ID. NO: 4; and
- f) the amino acid sequence set out in amino acids 22-167 of SEQ ID NO: 4, having an N-terminal methionine or an N-terminal polyhistidine.



156. (Currently amended) A method of expressing an OB polypeptide in a mammal comprising administering to said mammal a mammalian ~~cell~~ cells comprising an expression vector which vector comprises DNA encoding an OB polypeptide capable of ~~modulating~~ decreasing body weight operatively ~~associated with an expression control sequence whereby~~ linked to a promoter, wherein said mammalian cells are administered in a therapeutically effective amount such that the OB polypeptide is expressed ~~by~~ in the mammal and wherein said OB polypeptide is selected from the group consisting of the amino acid sequence set forth in:

- a) SEQ ID NO: 5;
- b) amino acids 22-166 of SEQ ID NO: 5;
- c) amino acids 22-166 of SEQ ID NO: 5, having an N-terminal methionine or an N-terminal polyhistidine;
- d) SEQ ID NO: 6;
- e) amino acids 22-166 of SEQ ID NO: 6; and
- f) amino acids 22-166 of SEQ ID NO: 6, having an N-terminal methionine or an N-terminal polyhistidine.

157. (Currently amended) A method of expressing an OB polypeptide in a mammal comprising administering to said mammal a mammalian ~~cell~~ cells comprising an expression vector which vector comprises DNA encoding an OB polypeptide capable of ~~modulating~~ decreasing body weight operatively ~~associated with an expression control sequence whereby~~ linked to a promoter, wherein said mammalian cells are administered in a therapeutically effective amount such that the OB polypeptide is expressed ~~by~~ in the mammal and wherein said OB polypeptide has 83 percent or greater amino acid identity to the OB polypeptide amino acid sequence set out in SEQ ID NOS: 2, 4, 5, 6, 23 or 25.

158. (Currently amended) A method of expressing an analog of an OB polypeptide in a mammal comprising administering to said mammal a mammalian ~~cell~~ cells comprising an expression vector which vector comprises DNA encoding an OB polypeptide analog capable of ~~modulating~~ decreasing body weight operatively ~~associated with an expression control sequence whereby~~ linked to a promoter, wherein said mammalian cells are administered in a therapeutically effective amount such that the OB polypeptide analog is expressed ~~by~~ in the mammal, said OB

polypeptide analog comprising amino acids 22-167 of SEQ ID NO:4 wherein one or more amino acids selected from the group consisting of amino acids 53, 56, 71, 85, 89, 92, 95, 98, 110, 118, 121, 122, 126, 127, 128, 129, 132, 139, 157, 159, 163 and 166 is substituted with another amino acid.

159. (Currently amended) A method of expressing an analog of an OB polypeptide in a mammal comprising administering to said mammal a mammalian cell ~~cells~~ comprising an expression vector which vector comprises DNA encoding an OB polypeptide analog capable of ~~modulating~~ decreasing body weight operatively ~~associated with an expression control sequence whereby~~ linked to a promoter, wherein said mammalian cells are administered in a therapeutically effective amount such that the OB polypeptide analog is expressed ~~by~~ in the mammal, said OB polypeptide analog comprising amino acids 22-166 of SEQ ID NO:6 wherein one or more of amino acids selected from the group consisting of amino acids 52, 55, 70, 84, 88, 91, 94, 97, 109, 117, 120, 121, 125, 126, 127, 128, 131, 138, 156, 158, 162 and 165 is substituted with another amino acid.

Claims 160-162 (canceled)

163. (Currently amended) A method for ~~decreasing~~ modifying the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid ~~molecule~~ sequence encoding a mammalian OB polypeptide ~~under conditions that provide for expression of the OB polypeptide in vivo whereby the body weight of the mammal is modified, such~~ operatively linked to a promoter, wherein the vector is a viral vector, wherein the mammalian OB polypeptide is capable of ~~modulating~~ decreasing body weight, and wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight.

164. (Currently amended) A method for ~~modulating~~ decreasing the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid molecule encoding an OB polypeptide capable of ~~modulating~~ decreasing body weight ~~under conditions that provide for expression of the OB polypeptide in vivo whereby the body weight of the mammal is~~ modified operatively linked to a promoter, wherein the vector is administered in a therapeutically

effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, such nucleic acid molecule being selected from the group consisting of:

- a) a nucleic acid molecule encoding the amino acid sequence set out in SEQ ID NO: 2;
- b) a nucleic acid molecule encoding the amino acid sequence set out in amino acids 22-167 of SEQ ID NO: 2;
- c) a nucleic acid molecule encoding the amino acid sequence set out in SEQ ID NO: 4;
- d) a nucleic acid molecule encoding the amino acid sequence set out in amino acids 22-167 of SEQ ID NO: 4; and
- e) a nucleic acid molecule which hybridizes under moderate stringency hybridization conditions to the polynucleotide of any one of a) through d).

165. (Currently amended) A method for ~~modulating~~ decreasing the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid ~~molecule~~ sequence encoding an OB polypeptide analog ~~under conditions that provide for expression of the polypeptide analog in vivo whereby the body weight of the mammal is modified~~ operatively linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, said OB polypeptide analog, capable of ~~modulating~~ decreasing body weight, comprising amino acids 22-167 of SEQ ID NOS: 2 or 4 wherein said analog is selected from the group consisting of polypeptides wherein:

- (a) the serine residue at position 53 is substituted with glycine, alanine, valine, cysteine, methionine, or threonine;
- (b) the serine residue at position 98 is substituted with glycine, alanine, valine, cysteine, methionine, or threonine; and
- (c) the arginine residue at position number 92 is substituted with asparagine, lysine, histidine, glutamine, glutamic acid, aspartic acid, serine, threonine, methionine, or cysteine.

166. (Currently amended) A method for ~~modulating~~ decreasing the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid ~~molecule~~ sequence encoding an OB polypeptide analog ~~under conditions that provide for expression of the polypeptide analog in vivo whereby the body weight of the mammal is modified~~ operatively

linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, said OB polypeptide analog, capable of ~~modulating~~ decreasing body weight, comprising an amino acid sequence of SEQ ID NOS: 2 or 4, wherein said analog is selected from the group consisting of polypeptides wherein:

- (a) one or more aspartic acid residues is substituted with glutamic acid;
- (b) one or more isoleucine residues is substituted with leucine;
- (c) one or more glycine or valine residues is substituted with alanine;
- (d) one or more arginine residues is substituted with histidine;
- (e) one or more tyrosine or phenylalanine residues is substituted with tryptophan;
- (f) one or more of residues 121 through 128 is substituted with glycine or alanine; and
- (g) one or more residues at positions 54 through 60 or 118 through 166 is substituted with lysine, glutamic acid, cysteine, or proline.

167. (Currently amended) A method for ~~modulating~~ decreasing the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid ~~molecule~~ sequence encoding an OB polypeptide ~~under conditions that provide for expression of the polypeptide in vivo whereby the body weight of the mammal is modified~~ operatively linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, said polypeptide, capable of ~~modulating~~ decreasing body weight, comprising the amino acid sequences set out in amino acids 22-167 of SEQ ID NOS: 2 or 4 or in amino acids 22-166 of SEQ ID NOS: 5 or 6 wherein said polypeptide has an N terminal amino acid sequence selected from the group consisting of:

- (a) SEQ ID NO: 38;
- (b) SEQ ID NO: 98;
- (a) SEQ ID NO: 26;
- (b) SEQ ID NO: 27;
- (c) SEQ ID NO: 28;
- (d) SEQ ID NO: 99; and
- (e) glycine-serine-proline (SEQ ID NO: 100).

168. (Currently amended) A method for ~~modulating~~ decreasing the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid ~~molecule~~ sequence encoding an OB polypeptide analog ~~under conditions that provide for expression of the polypeptide analog in vivo whereby the body weight of the mammal is modified~~ operatively linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, said analog, capable of ~~modulating~~ decreasing body weight, comprising amino acids 22-167 of SEQ ID NOS: 2 or 4, wherein one or more amino acids selected from the group consisting of amino acids 53, 56, 71, 85, 89, 92, 95, 98, 110, 118, 121, 122, 126, 127, 128, 129, 132, 139, 157, 159, 163, and 166 is substituted with another amino acid and wherein said analog has an N-terminal amino acid or amino acid sequence selected from the group consisting of:

- (a) methionine;
- (b) SEQ ID NO: 38;
- (c) SEQ ID NO: 98;
- (d) SEQ ID NO: 26;
- (e) SEQ ID NO: 27;
- (f) SEQ ID NO: 28;
- (g) SEQ ID NO: 99; and
- (h) glycine-serine-proline (SEQ ID NO: 100).

169. (Currently amended) A method for ~~modulating~~ decreasing the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid ~~molecule~~ sequence encoding an OB polypeptide analog ~~under conditions that provide for expression of the polypeptide analog in vivo whereby the body weight of the mammal is modified~~ operatively linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, said analog, capable of ~~modulating~~ decreasing body weight, comprising an amino acid sequence of SEQ ID NOS: 2 or 4, wherein said analog is a truncated analog selected from the group consisting of polypeptides wherein:

- (a) one or more residues at positions 121 to 128 are deleted;
- (b) residues 1-116 are deleted;

(c) residues 1-21 and 54 to 167 are deleted;  
(d) residues 1-60 and 117 to 167 are deleted;  
(e) residues 1-60 are deleted;  
(f) residues 1-53 are deleted;  
(g) an analog of subpart (a) wherein residues 1-21 are deleted; and  
(h) an analog of any of subparts (a) through (g) having an N-terminal amino acid or amino acid sequence selected from the group consisting of:

- (1) methionine,
- (2) SEQ ID NO: 38,
- (3) SEQ ID NO: 98,
- (4) SEQ ID NO: 26,
- (5) SEQ ID NO: 27,
- (6) SEQ ID NO: 28,
- (7) SEQ ID NO: 99, and
- (8) glycine-serine-proline (SEQ ID NO: 100).

170. (Currently amended) A method for ~~modulating~~ decreasing the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid ~~molecule~~ sequence encoding an OB polypeptide analog ~~under conditions that provide for expression of the polypeptide analog in vivo whereby the body weight of the mammal is modified~~ operatively linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, said analog, capable of ~~modulating~~ decreasing body weight, comprising amino acids 22-166 of SEQ ID NOS: 5 or 6 wherein said analog is selected from the group consisting of polypeptides wherein:

(a) the serine residue at position 52 is substituted with glycine, alanine, valine, cysteine, methionine, or threonine;

(b) the serine residue at position 97 is substituted with glycine, alanine, valine, cysteine, methionine, or threonine; and

(c) the arginine residue at position number 91 is substituted with asparagine, lysine, histidine, glutamine, glutamic acid, aspartic acid, serine, threonine, methionine, or cysteine.

171. (Currently amended) A method for ~~modulating~~ decreasing the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid ~~molecule~~ sequence encoding an OB polypeptide analog ~~under conditions that provide for expression of the~~ polypeptide analog in vivo whereby the body weight of the mammal is modified operatively linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, said analog, capable of ~~modulating~~ decreasing body weight, comprising an amino acid sequence of SEQ ID NOS: 5 or 6, wherein said analog is selected from the group consisting of polypeptides wherein:

- (a) one or more aspartic acid residues is substituted with glutamic acid;
- (b) one or more isoleucine residues is substituted with leucine;
- (c) one or more glycine or valine residues is substituted with alanine;
- (d) one or more arginine residues is substituted with histidine;
- (e) one or more tyrosine or phenylalanine residues is substituted with tryptophan;
- (f) one or more of residues 120 through 127 is substituted with glycine or alanine; and
- (g) one or more residues at positions 53 through 59 or 117 through 165 is substituted with lysine, glutamic acid, cysteine, or proline.

172. (Currently amended) A method for ~~modulating~~ decreasing the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid ~~molecule~~ sequence encoding an OB polypeptide analog ~~under conditions that provide for expression of the~~ polypeptide analog in vivo whereby the body weight of the mammal is modified operatively linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector, said analog, capable of ~~modulating~~ decreasing body weight, comprising an amino acid sequence of SEQ ID NOS: 5 or 6, wherein said analog is a truncated analog selected from the group consisting of polypeptides wherein:

- (a) one or more residues at positions 120 through 127 are deleted;
- (b) residues 1 - 115 are deleted;
- (c) residues 1-21 and 53 to 166 are deleted;

(d) residues 1-59 and 116 to 166 are deleted;  
(e) residues 1-59 are deleted;  
(f) residues 1-52 are deleted;  
(g) an analog of subpart (a) wherein residues 1-21 are deleted; and  
(h) an analog of any of subparts (a) through (g) having an N-terminal amino acid or amino acid sequence selected from the group consisting of:

- (1) methionine,
- (2) SEQ ID NO: 38,
- (3) SEQ ID NO: 98,
- (4) SEQ ID NO: 26,
- (5) SEQ ID NO: 27,
- (6) SEQ ID NO: 28,
- (7) SEQ ID NO: 99, and
- (8) glycine-serine-proline (SEQ ID NO: 100).

173. (Currently amended) A method for ~~modulating~~ decreasing the body weight of a mammal comprising administering to the mammal a vector comprising a nucleic acid ~~molecule~~ sequence encoding an OB polypeptide analog ~~under conditions that provide for expression of the polypeptide analog in vivo whereby the body weight of the mammal is modified operatively linked to a promoter, wherein the vector is administered in a therapeutically effective amount such that the mammal exhibits a decrease in body weight, wherein the vector is a viral vector,~~ said analog, capable of ~~modulating~~ decreasing body weight, comprising amino acids 22-166 of SEQ ID NOS: 5 or 6, wherein one or more amino acids selected from the group consisting of amino acids 52, 55, 70, 84, 88, 91, 94, 97, 109, 117, 120, 121, 125, 126, 127, 128, 131, 138, 156, 158, 162, and 165 is substituted with another amino acid and wherein said analog has an N-terminal amino acid or amino acid sequence selected from the group consisting of:

- (a) methionine;
- (b) SEQ ID NO: 38;
- (c) SEQ ID NO: 98;
- (d) SEQ ID NO: 26;
- (e) SEQ ID NO: 27;



- (f) SEQ ID NO: 28;
- (g) SEQ ID NO: 99; and
- (h) glycine-serine-proline (SEQ ID NO: 100).

174. (NEW) A method according to any of claims 163-173 wherein said viral vector is selected from the group consisting of attenuated or defective DNA virus vectors and retroviral vectors.

175. (NEW) A method according to claim 174 wherein said attenuated or defective DNA virus vector is selected from the group consisting of adenovirus and adeno-associated virus (AAV).